



Preliminary Planning Sheet Grade 5 – A Border for Mr. Gomez's Kitchen

Domain(s)

Number and Operations in Base Ten

Standard(s)

5.NBT.B.6

Mathematical Practices

MP.1 MP.3 MP.4 MP.5 MP.6 MP.7

Major Underlying Mathematical Concepts

- Find whole number quotients and remainders with up to 4-digit dividends and 2-digit divisors
- Multiplication/Division

Problem Solving Strategies

- Diagram/Key
- Table
- Area model
- Tally chart
- Graph
- Number line

Formal Mathematical Language and Symbolic Notation

- Diagram/Key
- Table
- Area model
- Tally chart
- Graph
- Number line
- Total/Sum/Product
- Division/Addition
- Quotient
- Dividend
- Divisor
- Equal to/Equivalent
- Odd/Even
- Per
- Row/Column
- x-axis
- y-axis
- Multiples
- Pattern
- Factors
- Dozen
- Whole number
- Input/Output
- Area

Possible Solution(s)

Mr. Gomez needs 756 tiles to make the border. Mr. Gomez needs 54 boxes of tile.

Wall	Row	Number of Tiles	Total Number of Tiles
1	1	63	63
1	2	63	126
1	3	63	189

Wall	Number of Tiles in 4 Walls	Total Number of Tiles
1	189	189
2	189	378
3	189	567
4	189	756

$$\begin{array}{r}
 \text{54 boxes} \\
 14 \overline{) 756} \\
 \underline{- 700} \quad 50 \\
 \quad 56 \\
 \underline{- 56} \quad 4 \\
 \quad \quad 0 \quad 54
 \end{array}$$

$$\begin{array}{|c|c|}
 \hline
 60 & 3 \\
 \hline
 \end{array}
 \times 3 = 189$$

$$\begin{array}{|c|c|c|c|}
 \hline
 100 & 80 & 9 & \\
 \hline
 \end{array}
 \times 4 = \begin{array}{|c|c|c|c|}
 \hline
 400 & 320 & 36 & 720 \\
 \hline
 \end{array}
 + 36 = 756$$

Possible Connections

Below are some examples of mathematical connections. Your students may discover some that are not on this list.

- There are a total of 12 rows of tile or a dozen rows.
- There is an equal amount of tiles per wall, and 3 times as many rows as walls in the kitchen.
- There is an odd number of tiles per wall.
- Graph rows and tiles/walls and tiles.
- Patterns: Tiles per wall +63, Total tiles of 4 walls +189.
- Recreate the task with more tiles per row, or more rows per wall.
- 54 and 14 are factors of 756. 756 is a multiple of 54 and 14.
- 54 boxes is the quotient, 14 tiles per box is the divisor and 756 tiles is the dividend.
- Solve more than one way to verify the answer.
- Consider what the area of the tiles would be.